Operational Review of the Commonwealth's Waste Management

State Sponsor: Department of Conservation & Recreation
Industry: Doug Whitehead, Director of Operations (Virginia/Maryland/Delaware), Waste Management, Inc
Local Government: John F. Miniclier, Jr. , County Administrator, Charles City County
Agency Staff: Department of Environmental Quality

Introduction

Governor McDonnell's Executive Order No. 19 (2010) "Conservation and Efficiency in the Operation of State Government" provides the framework for State Agencies to manage their resources in an environmentally conscientious and efficient manner. The goal shall be to maximize efficiency and conservation while minimizing the Commonwealth's impact and environmental footprint..

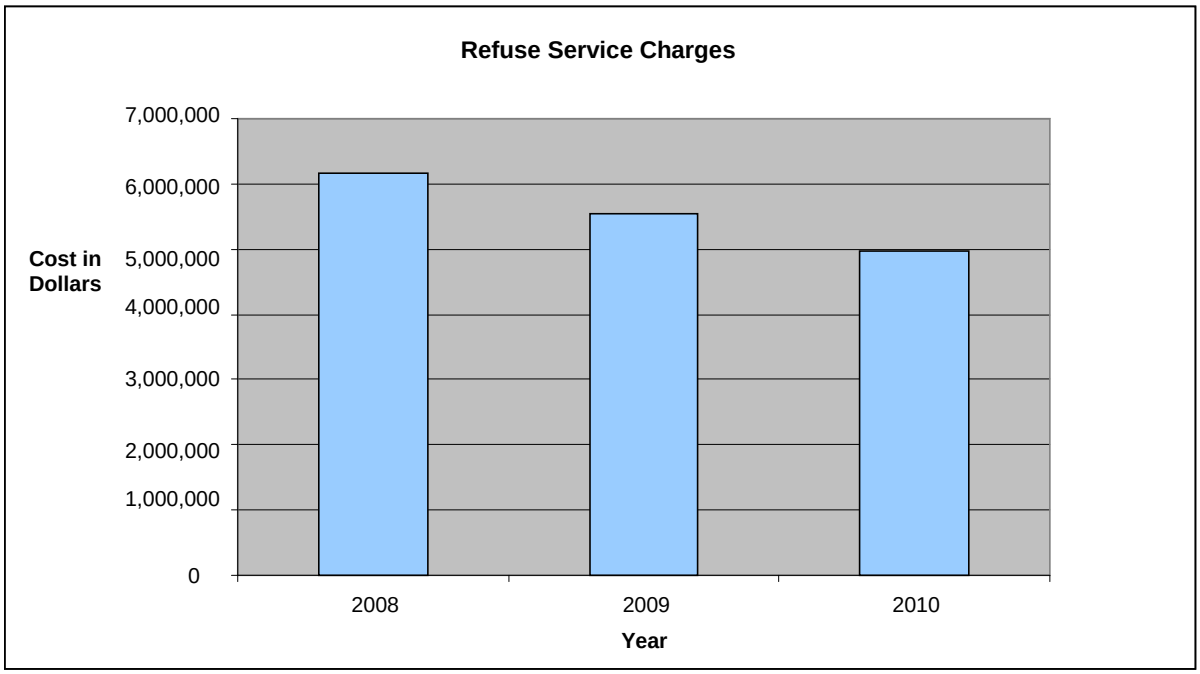
The Waste Management Group is charged with researching costs and operations associated with waste management. For purposes of this report, waste management includes solid waste reduction, managing solid waste and recyclable materials (such as paper and plastic). The group will recommend best practices in the services associated with managing solid wastes and recyclables and cost saving opportunities. This includes efforts to minimize and divert for recycling those solid wastes generated at state facilities. When considering cost reductions, the Commonwealth should also look for and evaluate, throughout all agencies, the opportunities for future up-front resource reduction. This may likely result in two potential savings - lower initial procurement costs, and reduced waste disposal at end of use.

Total Spend for Waste Management and Disposal

The team determined the actual costs for refuse (solid waste) over the past 3 years, as summarized in the graph below. During our review of state operations associated with waste management, it became apparent that there is no tracking and separate accounting for recycling charges, where they exist, as opposed to trash expenditures. Depending upon the markets and availability and the process for recycling, there may be no costs or actual payback from recycling efforts. The costs for waste management are not completely captured in the State's financial tracking record, as many agencies lease facilities and this cost is built into their leases. This report will focus on costs reductions where they can be implemented at state-owned facilities.

In addition, the Committee did not find where state agencies/locations track what percentage of their waste products are recycled. Instead the material to be recycled is generally captured in separate recycling containers (metal and plastic) and/or bundled (cardboard). As such, current practices do not allow for an accurate accounting of the percentage of the total waste stream that is recycled.

Our review includes costs associated with Object Code 1543 - Refuse Service Charges, and include expenditures for services to haul garbage, trash, and other refuse. The team reviewed the costs by agencies and found that the highest costs were associated with the Department of Corrections and the Department of Transportation.



There is no conclusion that can be made with respect to the costs, other than that there is a slight downward trend and as expected, large operations will generate larger volumes of waste. Source reduction and recycling may be contributing to slightly lower annual waste management costs.

Best Practices

While the team did not have agency-specific information relative to contract services for trash management, (containment, transportation and disposal), typical office buildings are serviced through one contract that includes all aspects of managing waste from a given facility. The best practices and recommendations to capture potential cost savings involve better tracking and management oversight through an integrated system that includes: 1) source reduction; 2) recycling/reuse; and, 3) disposal. There is no uniform process across all agencies that integrates and tracks these metrics.

The recommendations that follow can be divided into two major categories: Contracting & Waste Management Operations and Source Reduction and Recycling Best Practices.

The committee's investigation into waste management cost reductions determined that source reduction/recycling alone will not necessarily lead to the largest cost savings. The committee was aware that many if not most agencies have some effort towards source reduction and recycling. These efforts may lead to a net reduction in the amount of the waste stream that is disposed of through normal waste collection and landfilling operations. However, no waste disposal costs (beyond source reduction savings) are realized unless the facility reviews its waste disposal volume to determine if smaller disposal vessels and/or reduced trash pickups could be utilized as a result of the reduction in refuse (sometimes referred to as municipal solid waste). The savings from these management actions can be significant according to waste management companies.

Source Reduction and Recycling Best Practices are listed in this report. In some cases, such as reducing printer paper usage, the savings here would also be enumerated by other state agency operational review teams. To encourage additional savings in this area, it is suggested that agencies routinely educate their employees on the benefits of these practices.

It should also be noted that all of the waste management practices listed here are also very applicable to local government operations. It is expected that significant cost savings could be realized as well as the associated environmental benefits.

Contracting & Waste Management Operations

All of the best practices below will require more management focus and probable changes in contracting methods, along with better tracking by agencies.

1. Develop a "waste-contracting-checklist" or new methodology

2. Develop a list of those recycling commodities (by region of the state) that either generate revenue or are revenue neutral

3. Split out the four waste functions (street collection, transfer/long-haul, disposal, recycling), which will allow the agency to take advantage of savings in any waste produced.

   Example: Using roll-off compactors will allow agencies to receive a separate bill for disposal to maximize savings from source reduction.

   - The Commonwealth could reduce the actual service pickups as the waste volumes/weights drop.
   - Reduced volume/weight equals reduced disposal costs.
   - Have a separate compactor and receiver box for recycling that would allow the State to track and maximize recycling services, which may have a payback for commodity sales. Roucll-off compactors would only be applicable for larger facilities. The vendor or compactor manufacturer would help in installation and details.

4. When a site has dumpsters rather than compactors, it is recommended to bid pricing by the yard, rather than specific container requirements. This allows a local building manager to reduce or increase can sizes based upon need.

   Example: A local state manager may see that his six- cubic yard dumpster, picked up three times a week, is two-thirds full on average. He may change this to an eight cubic-yard dumpster serviced twice a week. This would be a more than 10% cost reduction.

   - Having both recycling and waste cans would allow the local manager to balance the two. Recycling collection is usually less expensive.
   - This would require that the state identifies all dumpsters, roll offs, etc. that it haves under contract. This is a central management function that does not appear to exist currently.

5. For major buildings the state could actually:

   - Buy their own compactors, a probable cost savings
   - Contract service by itself
   - Contract disposal by itself
   - Contract recycling rebates separately

6. Amend waste disposal contract when waste generation is reduced due to source reduction/recycling efforts.

7. For metropolitan areas with a large number of state-owned buildings, potentially develop regional consolidated contracts to reduce costs.

Source Reduction and Recycling Best Practices

Recycling is diverting end-of-life products and material from the waste stream, and then returning them to a processing network for recycling and reuse. The following information provides a checklist on how to set up and implement an agency recycling program:

1. Conduct a waste audit to determine the types of materials currently being disposed of in the trash. Examples include:
   i. Paper materials (e.g., office paper, magazines, cardboard, etc.)
   ii. Beverage containers (e.g., aluminum, glass, plastics)
   iii. Food waste (e.g., employee lunches, cafeteria food)
   iv. Batteries (e.g., auto, electronics)
   v. Packaging material (e.g., kraft papers, bubble wrap, envelopes)
   vi. Electronics (e.g., computers, cell phones, printers, etc.)

   b. Determine which material identified in the waste audit will be targeted for recycling. Consider the following:
      i. Largest volume or amount of material
      ii. Easily separated and stored
      iii. Identified market/collector network for this material
2. Determine how the identified materials will be collected within the office for recycling
   a. Desktop bins
   b. Centrally located office bins
   c. Other (e.g., exterior storage such as a loading dock, basement, etc.)
3. Determine how the materials will be collected by a vendor for processing and recycling
   a. Materials collected and consolidated by housekeeping staff
   b. Materials collected and consolidated by office staff
   c. Indoor or exterior consolidation storage
   d. Materials collected and consolidated through a contract with a local vendor
4. Determine the one-time and on-going costs for recycling in the agency/office
   a. Collection bins
   b. Consolidation bins
   c. Housekeeping costs
   d. Vendor contract(s)
5. Determine the training or guidance that will need to be provided to staff to implement the recycling collection program

Example: Virginia Department of Environmental Quality Recycling Program

The Department of Environmental Quality (DEQ) has a well-established recycling program that not only reduces waste management costs, but also helps to minimize the Department's environmental footprint:

DEQ's recycling programs vary from office to office as to scale and process, but the process by which recycling was started and continues was/is the same.

Each DEQ office evaluated its waste stream to identify the materials the agency was throwing away, and then implemented a program to capture as many of the identified materials as was possible, but specifically emphasizing paper waste and beverage containers. As of the last reporting, DEQ offices recycle over 31 different materials.

Materials targeted for recycling:

- Paper (white paper, newspaper, card board, office pack, mixed paper, packaging material, and books)
- Beverage Containers (plastic bottles, aluminum cans)

- Toner cartridges, inkjet cartridges
- Rechargeable batteries
- Compact Fluorescent bulbs
- Coffee grounds and miscellaneous food waste (for composting)

Reuse/waste minimization strategies:

- Duplex printing and copying
- Green agency events – reusable drink cups, plates and cutlery
- Electronic storage and transmission of documents
- Scratch pads made from old single-side printed documents
- Electronic publications

Collection setup:

- Paper (vendor provides floor recycling bins for different grades of paper; staff transports office waste paper to these central bins)
- Plastic bottles and aluminum beverage cans (paper vendor also provides bins for to collect these items)
- Contracted vendor for the above material switches out the bins twice a month
- Aluminum beverage cans (agency employee association collects cans as a fund-raising strategy for the group; collected cans are taken to a local buy-back center quarterly)
- Toner and inkjet cartridges (mail-in program)
- Rechargeable batteries (delivered to a local vendor)
- Compact fluorescent bulbs (mail-in program [universal waste])
- Food waste (employees collect and take home for composting)

Recommended Level of Spending for Agency Waste Management Expenses & Recommended Level of Agency Cost Savings

Given the level of current tracking and reporting of refuse and the lack of data on the ability to recycle materials in given markets across various regions of the Commonwealth it is not possible to actually recommend a certain level of spending for the function of waste management. Reviewing the waste management practices within an agency and tracking the usage of raw materials (such as paper) can provide data for future spending levels and cost savings. In addition, waste container utilization evaluations should be conducted; first as a base line and then against after the agency undertakes an enhanced source reduction/recycling effort. None of the best practices identified in this report require a significant capital investment. A useful tool for evaluating the start-up and other costs associated with a recycling program developed by Wake County, North Carolina is attached as Appendix A.